MT104-100/103

6-IN, 1-OUT VIDEO SWITCHER

CARD FOR MULTI-TASKER™

USER'S GUIDE

ALTINEX

SIGNAL
MANAGEMENT
SOLUTIONS

Tel: 714-990-2300 • Toll-Free: 1-800-ALTINEX • FAX: 714-990-3303 • E-mail: solutions@altinex.com • Web: www.altinex.com

TABLE OF CONTENTS

Page

PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **MT104-100/103**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MT104-100/103** and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

1.1 GENERAL

- Qualified ALTINEX service personnel, or their authorized representatives, must perform all service.

1.2 INSTALLATION

- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **MT104-100/103** in direct sunlight, near heaters or heat radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.

- Handle the **MT104-100/103** carefully. Dropping or jarring can damage the card.

- Do not pull the cables that are attached to the **MT104-100/103**.

- Insert the card carefully into the slots of the Multi-Tasker™ without bending any edges.

- When removing a card, please make sure that the card to which it is attached is also pulled out simultaneously.

1.3 CLEANING

- Clean only the connector area with a dry cloth. Never use strong detergents or solvents, such as alcohol or thinner. Do not use a wet cloth or water to clean the card. Do not clean or touch any component or PCB.

1.4 FCC / CE NOTICE

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense.

- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

ABOUT YOUR MT104-100/103　　2

MT104-100 & MT104-103
6-in 1-out MT Switcher Cards

The **MT104-100** and **MT104-103** are 6-in 1-out Video Switcher Cards. These MT Video SW cards enable 6 composite video sources to be connected and switched to a single display or recording device. The **MT104-100** can be used together with one or two Video SW Expansion Cards for up to 22 inputs. *See the **MT104-101** product sheet for more information.*

Multiple MT Video SW series cards can be installed into a Multi-Tasker™ enclosure to provide additional functionality. For example, two MT Video SW cards can be used to handle the two components of an S-Video signal (Chroma and Luma). In order to create a component video switcher, simply install three of the MT Video SW cards, one each for the Y, Pr, and Pb (or Y, R-Y, B-Y) signal components. Similarly, the MT Video SW series cards can also be used to pass computer video signals: 4 cards for RGBS and 5 for RGBHV.

The MT Video SW cards utilize solid state switching technology, and offer the ability to pass VGA thru UXGA high-resolution video signals without degradation. Inputs are selected via easy-to-use ASCII commands from a control system or computer connected to the RS-232 port of a Multi-Tasker™ enclosure. Also available through ASCII control is "on-off" output control.

Additionally, by special order you can have VIS (Vertical Interval Switching) capability added. This is a feature that eliminates the "glitch" normally associated with composite video switching.

TECHNICAL SPECIFICATIONS　　3

FEATURES/ DESCRIPTION	MT104-100/103
GENERAL	
Inputs	
External Connectors	(6) BNC Female (Analog Video or TTL Sync)
Internal Connectors	(2) 10-pin IDC Connectors
Outputs	
Output Connector	(1) BNC Female (Analog Video or TTL Sync)
Capability	
Using 1 Card	Composite Video
Using 2 Cards	S-Video (Y/C)
Using 3 Cards	Component Video, RGsB, & RsGsBs
Using 4 Cards	RGBS
Using 5 Cards	RGBHV, VGA thru UXGA*
Approvals	CE/FCC
Expandability	
MT104-100	Up to 2 expansion cards.
MT104-103	Not expandable

Table 1. **MT104-100/103** General

MECHANICAL	MT104-100/103
Enclosure Slots Required	One
Weight	0.43lb (0.19kg)
Shipping Weight	1 lb. (0.45kg)
Connector Panel	Black
T° Operating	10°C to 40°C
T° Storage	0°C to 50°C
Humidity	90% non-condensing
MTBF (calc.)	55,000 hrs

Table 2. **MT104-100/103** Mechanical

---

*　Adapter required. See Table 3, Optional Accessories.

≡ALTINEX

SIGNAL MANAGEMENT SOLUTIONS

ELECTRICAL	MT104-100/103
Input Signals	
Analog	+/-1.5V (1.5Vp-p)
Or Digital	+5V
Impedance	75 Ohms
Type	Differential
Return Loss	-38dB @ 50MHz
Maximum DC Offset	10mV
Output Signals	
Gain	1.05 (+/-5%)
Impedance	75 Ohms
Propagation Delay (Sync)	4nS max.
Rise/Fall time (Sync)	6nS max.
Differential Phase Error	01° @ 4.5 MHz
Power	

Power from MT100-100	+6V	-6V	Power Consumption
MT104-100	100mA	80mA	1.1 watts
MT104-103	125mA	90mA	1.3 watts

Optional Accessories	
MS8102CA	6ft., 15-pin HD Male to 5 BNC Male
MS8112CA	6ft., 15-pin HD Female to 5 BNC Male

Table 3. **MT104-100/103** Electrical

DESCRIPTION OF MT104-100   4

TOP RETAINER SCREW

POWER/SIGNAL PRESENT LED

VIDEO OUTPUT

6 INPUTS

BOTTOM RETAINER SCREW

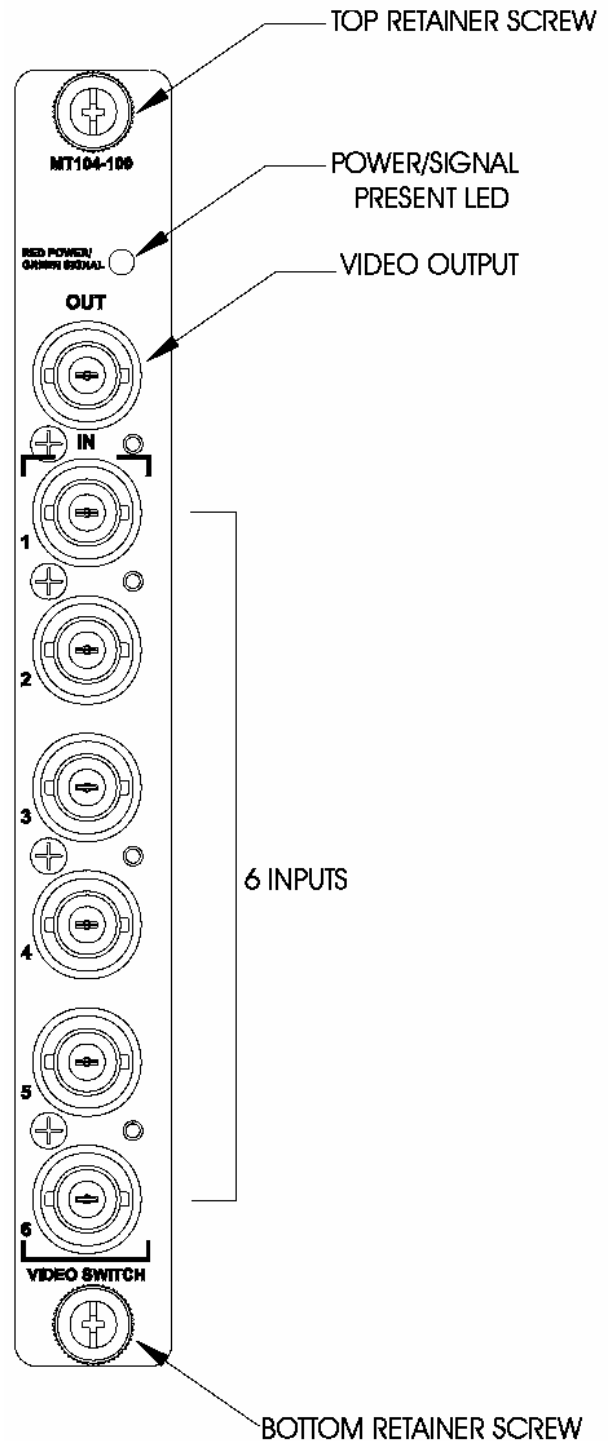## APPLICATION DIAGRAMS   5

DIAGRAM 1: RGBHV CONFIGURATION

Use the **MT104-100/103** card for RGBHV switching. One card is needed for each channel, for a total of 5
Video SW Cards: one card for R, one card for G, one card for B, one card for H and one card for V.
Connect IN 1 of the R signal card to the R signal from a laptop, video camera, etc. IN 2 will be connected to
the R signal of a Macintosh, document camera, etc. Continue this sequence for each card and signal.
Connect the VID OUT of the R signal card to the R signal from the projector. The same applies to the
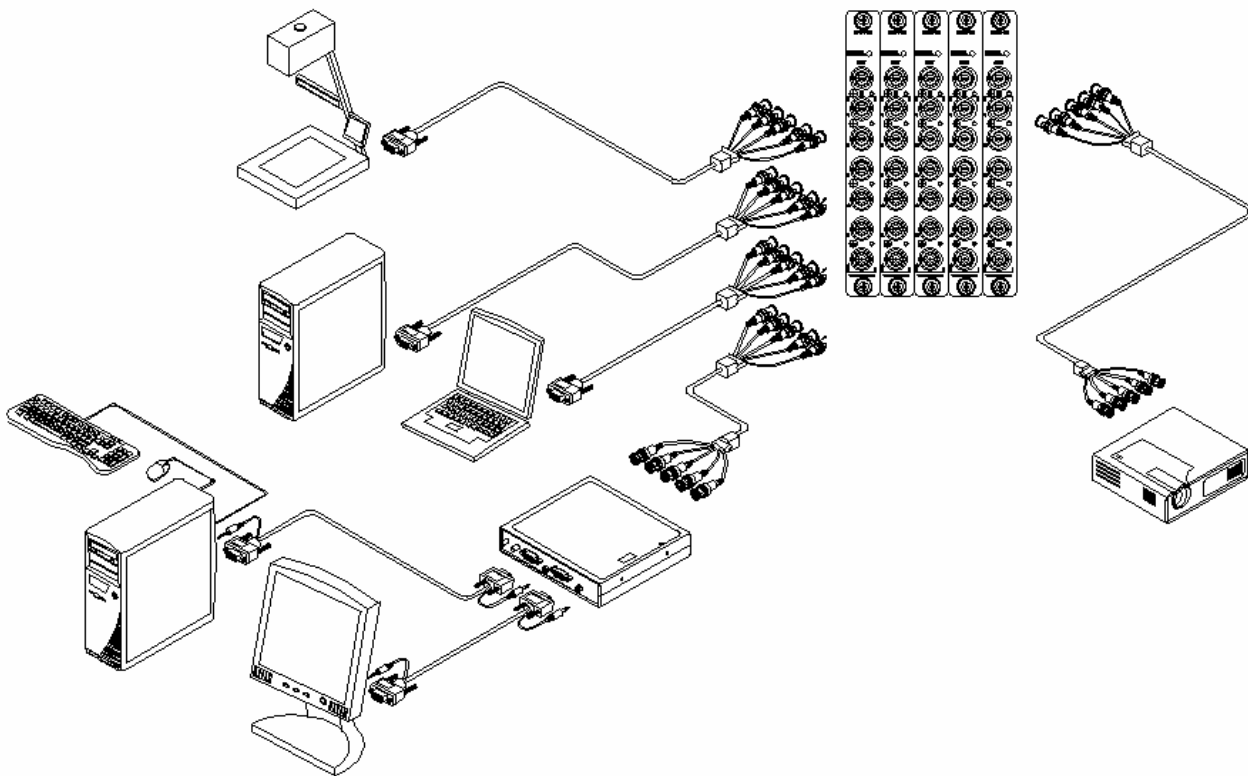G, B, H & V signals. Note: to group multiple cards, see the **MT100-100** user's guide for more information.

ALTINEX

SiGNAL
MANAGEMENT
SOLUTIONS

Tel: 714-990-2300 • Toll-Free: 1-800-ALTINEX • FAX: 714-990-3303 • E-mail: solutions@altinex.com • Web: www.altinex.com

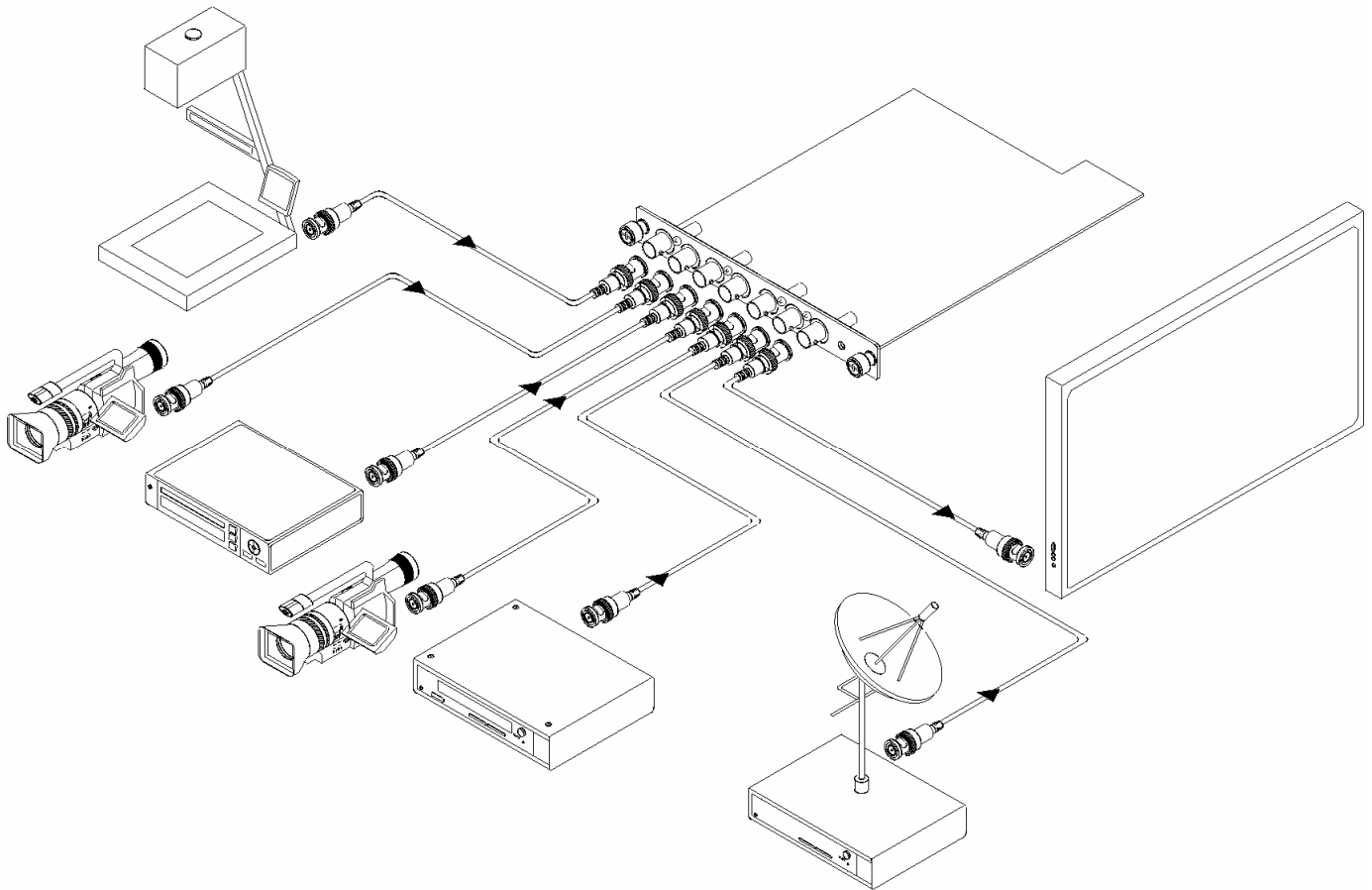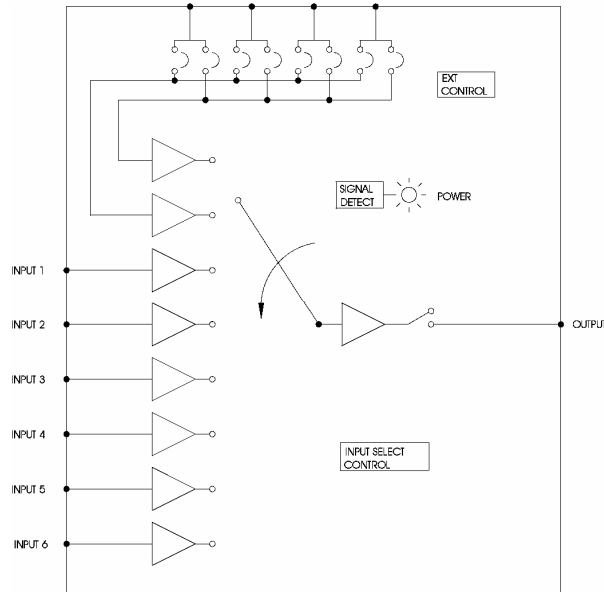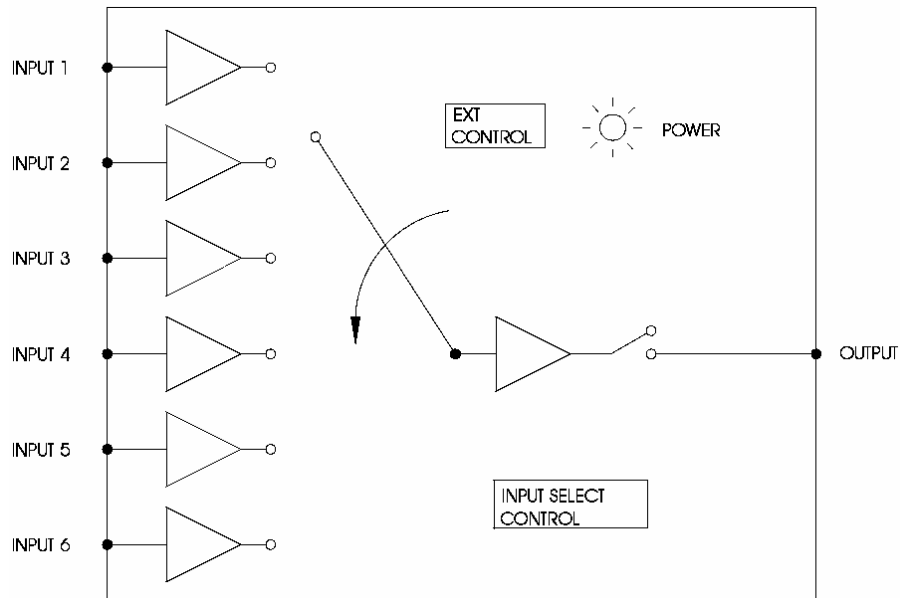## DIAGRAM 2: C-VIDEO CONFIGURATION

DIAGRAM 3: INTERNAL VIEW

6 IN 1 OUT BNC SW + SIGNAL DETECT + EXPANDABLE + OUTPUT DISABLE

6 IN 1 OUT BNC SW + OUTPUT DISABLE

INSTALLING YOUR MT104-100　　　6

Step 1. Slide the **MT104-100/103** into an available slot in the Multi-Tasker™ Enclosure in order to connect to the bus. Make sure that the **MT104-100/103** card fits into place. Secure the card to the Multi-Tasker™ by tightening the retainer screws located on the top and bottom of the **MT104-100/103** card.

Step 2. The LED on the card panel will turn red indicating that the card is in full operation. An LED that is blinking red indicates that the card is experiencing a problem. If the LED is blinking, see Troubleshooting Guide in section 8. On the MT104-100, a green LED indicates that a signal is present.

Step 3. Connect a coaxial cable from the video source to the input connector of the **MT104-100/103**. Connect the output connectors of the **MT104-100/103** to the display devices through a coaxial cable.

Step 4. Starting from the left, identify the slot number where the **MT104-100/103** card is plugged into the Enclosure and note that it is for RS-232 control.

OPERATION　　　7

7.1 RS-232 CONTROL

When used in the Multi-Tasker™ Enclosure, the **MT104-100/103** has many advanced remote control capabilities, which are accessible through standard RS-232 communication. The actual controlling can be accomplished through a computer control system or any other device capable of sending RS-232 commands.

7.1.1 RS-232 INTERFACE

The RS-232 commands, for the **MT104-100/103**, are in a simple ASCII character format.

---

1. **Square brackets "[ ]" are part of the command.**

2. **Use uppercase letters for all commands.**

After processing a command, an OK or ER will be returned as feedback if "F" is included at the end of a command string.

Commands ending in "S" will be saved into memory. Commands not ending in "S" will still be executed but will not be restored when the system is reset or powered OFF then ON.

7.2 DESCRIPTION OF COMMANDS

Each command consists of three parts: Function, Card ID, and Unit ID.

　　[Function , Card ID , Unit ID **]**

Example: [VERC3U2]

VER = Function
C3　 = Card ID or Group ID
U2　 = Unit ID

For Function, see a detailed explanation under each command description.

ΞALTINEX

SIGNAL
MANAGEMENT
SOLUTIONS

The Card ID is an assigned value. It is equal to the enclosure slot number in which the card is installed. The value can range from 1 to 4 up to 1 to 20 depending on the enclosure.

Card ID 0 (C0) is used for the controller. See the MT100-100 User's Guide for details.

The Group ID is a number representing a group of cards defined with the [WR] command. When using the Group ID, all cards in the group will perform the given instruction.

Changing the position of a card will significantly affect the commands recorded on software definitions or third party control systems.

The Unit ID has a value from 0 to 9. Unit ID 0 should be used for single unit operation. If the Unit ID is set to zero, each command may be used without Ui. Use the command [SETU0], as explained in the MT100-100 User's Guide.

Example:

[VERC3]:   For Unit ID Zero
[VERC3Ui]: For Unit ID other than Zero
[VERC3]:   Equivalent to [VERC3U0]

1. **[VER]**

   This command receives the software version and card type for the **MT104-100/103** card.

   Command Format: [VERCnUi]

   Cn = card ID (n = # from 1 to max slots)

   Ui = Unit ID (i = # from 0 to 9)

   Example:

   There is one **MT104-100/103** card is in slot #2 of unit 3. Send the command **[VERC2U3]**, and the Multi-Tasker™ Enclosure will return:

   MT104-100 690-0158-004

   MT104-100 = card type

   690-0158-004 = software version

2. **[C]**

   This command receives the status of the card.

   Command Format: [CnUi]

   Cn = Card ID (n = # from 1 to max slots)

   Ui   = Unit ID (i = # from 0 to 9)

   Example:

   There is one **MT104-100** card in slot #4. Sending the command [C4] to the Multi-Tasker™ will yield the following feedback:

   ON 4 C04

   ON 4   = Output 4 is selected and enabled
   C04   = The card is in slot 4

   If there is no card in slot #4, sending the [C4] command will not return any feedback.

3. **[CnS]**

   This command saves the current status of the card. This configuration will be restored after system is reset or powered off then on.

   Cn = card number (n = #1 to max slots)

   S = save configuration

   If Input 1 is enabled, the feedback after sending the command [C4S], for slot 4, would be:

   ON:1 C04 Saved

4. **[?]**

   This command will return general information about the Multi-Tasker™ and cards installed in the unit.

   Command Format: [?Ui]

   Cn = Card ID (n = # from 1 to max slots)

   Ui   = Unit ID (i = from 0 to 9)

Example:

A Multi-Tasker™ has a front panel with part number MT101-101 and contains an **MT104-100**. Send the command [?] and receive the following feedback:

[+MT101-101U0+MT104-100C01]

MT101-101U01 = Panel Number and Unit ID

MT104-100C01 = An MT104-100 is in slot 1

5. [?Cn]

This command will return general information about the card and its status. It is a function of both the card and the front panel and is only available with Multi-Tasker™ Front Panel systems that have the following firmware:

690-0122-015   = Version 015 or later.
690-0123-004   = Version 004 or later.
690-0124-018   = Version 018 or later.

NOTE: In MTSetup™, send the command [VER] from the Terminal Window. The system will respond with feedback similar to the following:

   [690-0122-015 690-0123-004 690-0124-018]

Check the last three digits against the numbers above to determine if the option is available.

Command Format: [?CnUi]

Cn = Card ID (n = # from 1 to max slots)
Ui = Unit ID (i = from 0 to 9)

Example:

The MT104-100 in slot #4 has Input 4 selected and the output is ON. Send the command [?C4] to receive the feedback status.

Each status field begins with a '+' and ends with the card slot number (ex: C04). The feedback will be similar to the following:

[+MT104-100C04+VR690-0158-004C04+IN4C04]

MT104-100   = Card Type
VR690-0158-004   = Firmware version
IN4   = Input 4 Selected

The selected input shows the number of the selected input if the card output is on. If the output is off, the line will not show any input number and would be as follows:

+INC04

6. [STA]

This command enables/disables automatic feedback from the front panel. The command affects any card with auto-feedback capability, not just the **MT104-100/103**. The default at power on or reset is STA0, OFF.

Command Format [STA1] = ON

Command Format [STA0] = OFF

Feedback Prefix Definitions:
+VR = Firmware Version
+IN = Input Selected

Example:

Command = [ON1C4]
Feedback = [+IN1C04]
           +IN = Input Select
           1 = Selected Input
           C04 = Card slot number

7. [ON]

This command enables one input of a single card or a group of cards. There are 8 inputs for the MT104-100 and 6 inputs for the MT104-103. On the MT104-100, Inputs 7 and 8 are internal inputs.

[ONmCnUi]: Single Card

This command enables input "m" and disables all other inputs.

m = Input Number (m = 1 to max inputs)

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = 0 to 9)

Example:

All of the inputs on the **MT104-100/103** card are OFF. The card is in slot #5 of Unit 3:

1) [ON1C5U3]: Turns ON only input 1 of the MT104-100/103 card.

2) [ON3C5U3]: Turns ON only input 3 (input 1 is now OFF).

[ONmGkUi]: Group of Cards

This command enables input "m" for each card in group "k" of unit "i".

m   = Input Number (m = 1 to max inputs)

Gk = Group Number (k = # from 1-8)

Ui   = Unit ID (i = # from 0-9)

Example:

[ON1G1U1]: Turns ON input 1 for each card in Group 1 of Unit 1.

PATH OPTION

[ON…..P]: Sets Path

This command will set the path for the output, but it is not active until the switch command, [SW], is executed. Commands ending in "P" are not executed immediately. The path for outputs on multiple cards or the same card can be preloaded.

Command Format: [ONmCnUiP]

m   = Input (m = 1 to max inputs)

Cn = Card ID (n = slot # from 1 to max slots)

P   = Path

Example:

There are two **MT104-100/103** cards in slots 6 and 7. Use the following commands to enable input 1 of card 6 and input 3 of card 7 simultaneously:

[ON1C6**P**]
[ON3C7**P**]
[SW]

FEEDBACK OPTION

If "F" is included, use the [ONmCnUi**PF**] command or the [ONmCnUi**FP**] command.

[ON…..F]: Feedback

After processing a command, an OK or ER will be returned as feedback if "F" is included at the end of a command string.

Example:

[ON1C2**F**]: if path is not set
[ON1C2**PF**]: if path is set

8. **[OFF]**

   This command disables the output of a single card or a group of cards.

   [OFFmCnUi]: Single Card

   m   = Input Number that is ON (optional)

   Cn = Card ID (n = slot # from 1 to max slots)

   Ui   = Unit ID number (i = 0 to 9)

   Example:

   Card 5 has Input 1 ON. The following commands can be used to turn OFF the output.

   1) [OFF1C5]:   Turns OFF only input 1.

   2) [OFFC5]:   Turns OFF any input.

   [OFFmGkUi]: Group of Cards

   This command disables input "m" for each card in group "k" of unit "i".

   m   = Input Number that is ON (optional)

   Gk = group number (k = # from 1-8)

   Ui   = unit number (i = # from 0-9)

   Example:

   1) [OFF1G1]: Turns OFF input 1 for each card in Group 1.

   2) [OFFG1]: Turns OFF any input for each card in Group 1.

MULTI-TASKER™

PATH OPTION

 [OFF…..P]: Sets Path

This command will set the path for the output, but it is not active until the switch command, [SW], is executed. Commands ending in "P" are not executed immediately. The path for outputs on multiple cards or the same card can be loaded.

Command Format: [OFFmCnUiP]

m   = Input Number that is ON (optional)

n   = card ID (n = slot # from 1 to max slots)

P   = path

Example:

There are two **MT104-100/103** cards in slots 6 and 7. Disable Input 1 of card 6 and Input 3 of card 7 simultaneously using the following commands.

[OFF1C6**P**]
[OFF3C7**P**]
[SW]

FEEDBACK OPTION

If "F" is included, use the [OFFmCnUi**PF**] command or the [OFFmCnUi**FP**] command.

[OFF…..F]: Feedback

After processing a command, an OK or ER will be returned as feedback if "F" is included at the end of a command string.

Example:

[OFF1C2**F**]: if path is not set
[OFF1C2**PF**]: if path is set

9. **[…S]** – Save

This command will save the configuration command being sent in memory. When sending the command [ON1C4S], after reset or power up, Output 1 on C4 will be enabled.

10. **[…F]** – Feedback

After processing a command, an OK or ER will be returned as feedback if "F" is included at the end of a command string.

11. **[…P]** – Path

This command will set the path for the output, but it is not active until the switch command, [SW], is executed. Commands ending in "P" are not executed immediately. The path for outputs on multiple cards or the same card can be loaded. See examples in ON and OFF commands.

12. **[SW]** – Switch

The switch command immediately connects inputs and outputs previously set with the path command. The command switches all paths set on this card and all other cards in the enclosure

Example:

[ON1C6P]
[ON3C7P]
[SW]

13. **[SIG]** – MT104-100 Only

The Signal Present command tests for the presence of a signal. After sending the command, the feedback will be either "1" signifying a signal is present, or a "0" indicating no signal was detected.

Command Format: [SIGCnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui   = Unit ID (i = # from 0 to 9)

Example:

To check for the presence of an input signal on card 4, send the command [SIGC4] and verify feedback of "1" or "0".

14. **[AUTO]** – MT104-100 Only

This command is used to enable or disable the auto-switching feature. In auto-switch mode, the first input with a signal detected will be connected to the output. Use this where only one active source is expected at a time.

CAUTION: Auto-switch mode disables manual control of input selection.

Command Format: [AUTO=xCnUi]

x = Auto Mode (0 = Manual, 1 = Auto)

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Send the command [AUTO=1C4] to place the **MT104-100** in slot #4 in auto-switch mode. A status of the card, [C4], will produce feedback similar to the following:

ON 2 AUTO C04

15. **[CLR]**

This command resets the card configuration to the factory defaults. After the [CLR] command, Input 1 will be selected and ON.

Command Format: [CLRCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

Send the command [CLRC4] to reset the card in slot #4 to its factory defaults. The feedback after sending the status command, [C4], will be as follows:

ON 1 C04

16. **[TEST]**

This command performs a test on the internal memory. Upon completion, the system will display the results. If there are no problems, the system will display the following:

MEMORY IS GOOD

Otherwise, failures will be indicated.

Command Format: [TESTCnUi]

Cn = Card ID (n = slot # from 1 to max slots)

Ui = Unit ID (i = # from 0 to 9)

Example:

There is an **MT104-100** in slot #4. In order to test the internal memory, send the command [TESTC4].

17. **[FBD]**

This command turns feedback delay on or off . It is necessary when installing some newer cards in older systems. If the system does not receive all of the feedback from the card, the card may be communicating too fast. This command will slow down the card's communication rate.

Command Format: [FBDmCnUi]

m = Delay (0= no delay, 1= delay 100mS)

Cn = Card ID (n = # from 1 to max slots)

Ui = Unit ID (i = from 0 to 9)

Example:

The command [HELPC4] is sent to the card in slot #4. Some of the HELP file is displayed on the screen, but most is missing. Send the command [FBD1C4] to slow down the rate at which the card sends feedback to the system.

CARD ID COMMANDS

The default Card ID is the same as the card slot number. The next several commands allow the user to change the Card ID to a value other than the slot number.

The ID commands work with all Multi-Tasker™ Front Panel systems. However, front panels that have firmware releases prior to the following will not be able to address Card ID's greater than the number of slots in the system:

690-0122-019 = Version 019 or later.

690-0123-005 = Version 005 or later.

690-0124-019 = Version 019 or later.

NOTE: In MTSetup™, send the command [VER] from the Terminal Window. The system will respond with feedback similar to the following:

[690-0122-015 690-0123-005 690-0124-019]

Check the last three digits against the numbers above to determine if the Card ID commands can address all 99 Card ID's.

Some cards require more than one slot in the Multi-Tasker™ system. As an example, some matrix switcher cards require 4 slots. If there are 5 of these cards installed, they would be numbered C4, C8, C12, C16 and C20. Changing the Card ID allows the user to define the cards as C1, C2, C3, C4 and C5.

Another use for changing the Card ID is to be able to use multiple systems without having to set each unit to a different Unit ID. All systems may be left as Unit ID 0 for ease of programming. The cards in the first unit may be numbered 1-10 and in the second unit 11-20.

18. **[RSI]**

This command resets the card ID's in the system. After sending this command, each card ID in the system will match the slot number of the card. Use this command along with the SID commands that follow. The [RSI] command MUST be used prior to changing Card ID's once they have already been set.

Command Format: [RSI]

Example:

Send the command [RSI] to the system with Unit ID 0. The card in slot 1 will have ID 1, the card in slot 2 will have ID 2 and so on.

19. **[SIDn]**

This command sets all the cards installed in the Multi-Tasker™ system to the same Card ID. After sending this command, all cards will be addressed with the same ID. Use caution when sending this command to a system with multiple board types.

Command Format: [SIDn]

n   = Card ID (n = # from 1 to 99)

Example:

Send the command [SID1] to the system. All the cards in the system now have ID 1. Any commands that are sent to Card ID 1 will be received and executed by each card.

20. **[SIDnCi]**

This command sets the Card ID of a single card to a number from 1 to 99.

Command Format: [SIDnCi]

n   = Card ID (n = # from 1 to 99)
Ci   = Slot Number (i = # from 1 to max slots)

Example:

Send the command [SID50C10] to set the ID of the card in slot #10 to an ID of 50.

21. **[SID+]**

This command sets the Card ID of all the cards in a system to their slot number plus the offset value.

Command Format: [SID+n]

n   = Offset amount (n = # from 0 to 99)
The maximum Card ID is 99, so subtract the highest slot number from 99 to find the maximum offset. For example, in an 8 slot enclosure, the maximum offset would be 91. The slot number, 8, plus the offset, 91, equals 99.

Example:

There are two, 20 slot enclosures to be connected together during normal operation. The first unit will use the Card ID defaults which are equal to their slot numbers. The second unit will have the same Unit ID, but will have the card ID's offset by 20.

Connect the computer to the second unit only and send the command [SID+20] to set the ID of all the cards in the enclosure to their slot number plus 20. Reconnect both units to the computer.

The cards in the first unit will be referenced as Card ID's 1-20 and the cards in the second unit will be referenced by Card ID's 21-40.

22. [RSN]

This command reads the slot number of the card with a specified ID number, and returns the value to the system to be displayed in the terminal window. If more than one card has the same ID, each slot number will be displayed.

Command Format: [RSNCi]

Ci   = Card ID (i = # from 1 to 99)

Example:

The card in slot #4 takes up four slots in the enclosure. Its ID was set to 1 since it is the first card installed in the system, reading from left to right. Send the command [RSNC1] to find the slot number of this card. The system responds with the following feedback:

4

23. [HELP]

This command displays information available for the Multi-Tasker interface commands.

Command Format: [HELPCnUi]

Cn = Card ID (n = # from 1 to max slots)

Ui   = Unit ID (i = # from 0 to 9)

Example:

In order to display the RS-232 commands available for the **MT104-100/103** card in slot #2, send the command [HELPC2]. The commands along with a brief description will be displayed in the Terminal Window.

24. [WR]

This command groups multiple cards in the enclosure allowing all the group members to be controlled simultaneously with the same command. Each unit may define a maximum of eight groups.

In Multi-Tasker™ systems with audio and video cards, boards are typically grouped as follows:

Group 1 = Video Cards
Group 2 = Audio Cards
Group 3 = Video and Audio Cards

If assigning group commands to button functions, it is best to use the "Press and Hold on Power Up" to make group settings.

Command Format: [WRCn$_1$Cn$_2$…GkUi]

Cn = Card ID (n = slot # from 1 to max slots)

Gk = Group number (k = # from 1-8)

Ui   = Unit ID (i = # from 0-9)

Example:

To group cards 1, 2, and 3 as group 5 of Unit ID 1, send the command [WRC1C2C3G5U1]. After executing this command, cards 1, 2 and 3 will be grouped together as group 5 of Unit ID 1. The system will return the following feedback:

G1=C1C2C3

Now, when a command is sent to G1, each board in G1 will execute the same command.

25. [RMC]

This command may be used to remove one or more group members from a group. Reset the system after using this command for all changes to take effect.

Command Format: [RMCn$_1$Cn$_2$…GkUi]

Cn = Card ID (n= # from 1 to max slots)
Gk = Group number (k = # from 1-8)
Ui = Unit ID (i = # from 0-9)

Example:

Group 1 consists of the cards located in slots numbered 1, 2, 3, 4 and 5. Remove just cards #4 and #5 from the group by sending the command [RMC4C5G1]. The system will return the following feedback:

G1=C1C2C3

26. **[RMG]**

This command may be used to delete an entire group, or all groups.

REMOVE ONE GROUP MEMBERS

Remove all the members from the group, effectively deleting the group.

Command Format: [RMGkUi]

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

Group 1 consists of the cards located in slots number 1, 2 and 3. Remove all cards from the group by sending the command [RMG1]. The system will return the following feedback:

G1=EMPTY

REMOVE ALL GROUPS

Remove all the members from every group, effectively deleting all groups.

Command Format: [RMGÜUi]

Ui = Unit ID (i = # from 0-9)

Example:

Group 1 consists of cards 1 and 2. Group 2 consists of cards 1, 2, 3, 4 and 5. Delete all the groups by sending the command [RMGÜ]. The system will return the following feedback:

G1-G8:EMPTY

27. **[RD]**

This command reads and then displays the members in each group.

Command Format: [RDGkUi]

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

The cards in slots 1, 2 and 19 are part of group 5. Read the member data for group 5, by sending the command [RDG5]. The system will return feedback as follows:

G1=C1C2C19

The feedback shows G1 (Group 1) and then the cards that make up Group 1. In this case, Group 1 includes C1, C2 and C19.

28. **[CLM]**

This command removes the members in a group and leaves the group empty. It is equivalent to sending the [RMGkUi] command without card references.

Command Format: [CLMGkUi]

Gk = Group number (k = # from 1-8)

Ui = Unit ID (i = # from 0-9)

Example:

Group 5 of Unit ID 1 contains the cards in slots 1, 2 and 19. Read the member data for group 5 of Unit ID 1. Send the command [RDG5U1] and receive the following feedback:

G1=C1C2C19

Now, clear group 5 by sending the command [CLMG5U1]. Reread the member data as above and note the following feedback:

G1=EMPTY

MULTI-TASKER™

7.3 SUMMARY OF COMMANDS

Card Commands

1) **[VER]**   **Receives software version**
2) **[C]**   **Receives status of the card**
3) **[C*n*S]**   **Save card settings**
4) **[?]**   **Show system cards**
5) **[?C]**   **Show card information**
6) **[STA]**   **Enable/disable auto feedback**
7) **[ON]**   **Turn output ON for card/group**
8) **[OFF]**   **Turn output OFF for card/group**
9) **[…S]**   **Save card settings**
10) **[…F]**   **Display command feedback**
11) **[…P]**   **Sets the path, preload for [SW]**
12) **[SW]**   **Switch preloaded output buffer**
13) **[SIG]**   **Signal Detect**
14) **[AUTO]**   **Auto-Switching control**
15) **[CLR]**   **Reset card to default values**
16) **[TEST]**   **Test internal memory IC's**
17) **[FBD]**   **Feedback delay on/off**
18) **[RSI]**   **Reset Card ID's**
19) **[SIDn]**   **Set all Card ID's**
20) **[SIDnCi]** **Set one Card ID**
21) **[SID+n]** **Set Card ID offset**
22) **[RSN]**   **Read Card slot number**
23) **[HELP]**   **Display available commands**

Group Commands

24) **[WR]**   **Groups multiple cards**
25) **[RMC]**   **Remove members from group**
26) **[RMG]**   **Delete group**
27) **[RD]**   **Displays group members**
28) **[CLM]**   **Delete group**

7.4 MENU MODE

MENU MODE commands are RS-232 commands that allow virtually the same functionality as programming commands. Unlike the programming commands in the previous sections, 7.2 and 7.3, MENU commands prompt the user to select from a list of available options. The system then responds based upon selections made by the user.

MENU commands may be issued in response to prompts from within MTSetup™ or other RS-232 communication software.

The MENU driven commands are only available with Multi-Tasker™ Front Panel systems that have the following firmware:

690-0122-015 = Version 015 or later.
690-0123-004 = Version 004 or later.
690-0124-018 = Version 018 or later.

NOTE: In MTSetup™, send the command [VER] from the Terminal Window. The system will respond with feedback similar to the following:

  [690-0122-015 690-0123-004 690-0124-018]

Check the last three digits against those above to determine if the MENU MODE option is available.

7.4.1 MENU COMMAND DEFINITIONS

Refer to section 7.2 for details on functions and examples. Following is a cross-reference of menu mode versus programming functions.

MENU	COMMAND
Control	
Select	n/a
Save	[CnS], [..S]
Clear	[CLR], [CLRG]
Switch	[ON], [OFF]
Setup	
Group	[WR], [CLM], [RMC], [RMG]
Status	[VER], [C]
Help	[HELP]
Not Available	[?], [?Cn], [...F], [...P], [AUTO], [FBD], [RDG], [RSI], [RSN], [SID], [SIDnCi], [SID+n], [SIG], [STA], [SW], [TEST]

7.4.2 USING MENU MODE

SUGGESTION: Before using the menu mode, it is best to disable the automatic feedback feature. The values and current settings will be displayed in the menu mode, but the automatic feature will display after each setting change making the menus difficult to read.

1. In order to enter MENU mode, the system needs to be connected to a computer running MTSetup™ or other RS-232 control software.

2. Insert the card into an empty slot and push in all the way for a secure fit.

3. Reset the system or power the system OFF and then ON.

4. In MTSetup™, click the cursor in the Terminal Window and press the ENTER key.

5. The system will interrogate the enclosure and return a list of cards installed and their slot locations.

    Example: 08 (Slot 8): **MT104-100**

    NOTE: Only cards supporting the MENU feature will be displayed.

5. Find the alphanumeric characters representing the card whose setup requires changing. It will be the first one or two characters in the line.

6. Press the number or letter associated with the card, and a menu with options available for that card will appear on the screen. In the example above, press "08".

    WARNING: Do NOT enter any characters except the one relating to the desired menu. Pressing ENTER or RETURN after "08" will force the system back to the original prompt.

7. After selecting the **MT104-100** as described above, the system will prompt for selections specific to that card.

8. Read each menu carefully, and continue selecting keys as prompted for further functions. (Example prompt: "Key= ")

7.4.3 MENU TYPES

1. MAIN MENU

    The first menu displayed after selecting the card is the Main Menu. This menu provides access to the main functions related to the card. Press the key representing the menu item for access. A sub menu will appear next.

2. SUB MENUS

    Each sub menu will display either another menu (sub menu) or a list of available options or settings. Press the key corresponding to the menu choice to change a setting or select the next menu.

    NOTE: Pressing the ESCAPE (ESC) key in most menus will take you up to the previous menu without making changes in the current menu.

7.4.4 MT104-100 MENUS

Following are the menus available to the **MT104-100**. The first menu is the Main Menu only. The second listing is an expansion of all the menu items available.

The expanded menu contains values that indicate the current setting or value of a parameter. The value is usually in parentheses, or otherwise indicated at the top of a sub menu. In some areas, additional comments are provided for clarification.

CAUTION: Pay special attention to the top of the CONTROL menu. After selecting the CONTROL menu, THIS CARD or a group will be identified at the top of the sub menu. Since group functions may be modified from this menu, make sure the desired card or group is selected.

MT104-100/103 MAIN MENU

PRESS KEY TO SELECT

1: CONTROL
2: SETUP
3: STATUS
4: HELP
ESC: GO BACK

KEY =

MT104-100/103 EXPANDED MENUS

1. CONTROL

CONTROL: FOR THIS CARD

1: SELECT (Select Card/Group for Control)

CURRENT SELECTION: THIS CARD

0: This Card
1: Group 1
2: Group 2
3: Group 3
4: Group 4
5: Group 5
6: Group 6
7: Group 7
8: Group 8
ESC: GO BACK

2: SAVE   (Save Card Settings)

ON 1 C03

SAVE THIS SETTING?
1: YES
2: NO

3: CLEAR (Set to Defaults)
RESET CARD TO FACTORY DEFAULT:

* Switch to Input 1
1: YES
2: NO

4: SWITCH (Switch I/O Connection)
SWITCH: (INPUT1)
1: INPUT1
2: INPUT2
3: INPUT3
4: INPUT4
5: INPUT5
6: INPUT6
7: INPUT7
8: INPUT8
ESC: GO BACK; S:STATUS
ESC: GO BACK

2: SETUP

SETUP:

1: SET GROUP ID

SET GROUP ID: (NONE)

1: ASSIGN GROUP ID+
2: DELETE GROUP ID+
ESC: GO BACK

3: STATUS

Equivalent to the [C] command.

Returns the card status.

4: HELP

Equivalent to the [HELP] command.

Displays a list of commands available for the **MT104-100/103** along with a brief description.

ESC

Returns to the parent menu.

7.4.5 MENU MODE EXAMPLES

All MENU MODE examples assume an **MT104-100** is installed in slot #4. Start by clicking the mouse in the Terminal window. Press ENTER and a list of available cards will be displayed.

NOTE When entering numeric values (not selecting menu items) the system may echo each character as it is typed.

1. Select Input 2

Follow the keystrokes below to select Input 2 as the source input.

Enter	List available cards
04	Select MT104-100 in slot #4
1	Select CONTROL Menu
4	Select SWITCH control
2	Select Input 2
ESC	Return to CONTROL Menu
ESC	Return to the MAIN Menu

2. Save the card setting

Starting from the main menu, save the card settings. Follow the keystrokes below.

1	Select Control Menu
2	Select SAVE control
1	Answer YES to save
ESC	Return to the MAIN Menu

3. Assign to Group 2

Starting from the main menu, assign the MT104-100 in slot #3 to Group 2. Follow the keystrokes below.

2	Select SETUP Menu
1	Select SET GROUP ID
1	Assign GROUP ID
2	Assign to Group 2
	The contents of Group are displayed.
ESC	Return to SET GROUP ID menu
ESC	Return to CONTROL menu
ESC	Return to the MAIN Menu

4. Display Card Status

Starting from the Main Menu, follow the keystrokes below.

3	Displays card status

NOTE: The status will be displayed, followed by the Main Menu being redisplayed.

TROUBLESHOOTING GUIDE 8

We have carefully tested and have found no problems in the supplied **MT104-100/103**; however, we would like to offer suggestions for the following:

8.1 LED IS NOT ON

Cause 1: Card cage is not plugged in.

Solution: Plug card cage in. If the LED lights, the problem is solved. If the LED is still not on, see Cause 2.

Cause 2: Card is not plugged in all the way.

Solution: Push the card in all the way. If the LED is still not lit, see Cause 3.

Cause 3: Card cage slot has a problem.

Solution 1: Test the card in other slots of the card cage. If the slot was damaged, the card may work in other slots. If other slots work and the LED lights, the problem is the card cage slot. The card cage may require service. Call ALTINEX at (714) 990-2300. If the other slots do not work and the LED is still not on, see Solution 2.

Solution 2: Take any other known good card with an LED. Insert the good card into the slot in question. If the LED lights, then the original card may be the source of the problem. Call ALTINEX at (714) 990-2300.

8.2 LED IS BLINKING RED

Cause 1: The CPU on the card is not working properly.

Solution 1: Look at the card and verify that there is no damage. If there is no damage, see Solution 2.

Solution 2: Verify that all IC's are seated in their sockets. If the LED is still blinking red, see Solution 3.

Solution 3: Call ALTINEX at (714) 990-2300.

Cause 2 **The card and its serial device are not communicating.**

Solution 1: Turn the system OFF and then ON again. If there is still an error, see Solution 3.

Solution 2: Call ALTINEX at (714) 990-2300.

Cause 3: **RS485 communication error**

Solution 1: Make sure that the card is pushed all the way into the slot. If there is still an error, see Solution 2.

Solution 2: Turn the system OFF and then ON again. If there is still an error, see Solution 3.

Solution 3: If there is still a problem, call ALTINEX at (714) 990-2300.

8.3 NO DISPLAY

Cause 1: **The source has a problem.**

Solution: Check the source and make sure that there is a signal present and all source connections are correct. If the source is working and there is still no display, see Cause 2.

Cause 2 **The card input is not selected.**

Solution: Select the card input. See RS-232 accessible commands in section 7. If there is still no display present, see Cause 3.

Cause 3 **Cable connections are incorrect.**

Solution: Make sure that the cables are connected properly. Also, make sure that the continuity and wiring are good. If there is still no display present, see Cause 4.

Cause 4: **The display has a problem.**

Solution: Make sure that the display is powered. If there is still no display, call ALTINEX at (714) 990-2300.

ALTINEX POLICY   9

9.1 LIMITED WARRANTY/RETURN POLICY

Please see the Altinex website at www.altinex.com for details on warranty and return policy.

9.2 CONTACT INFORMATION

ALTINEX, INC

592 Apollo street

Brea, CA 92821 USA

TEL: 714 990-2300

TOLL FREE: 1-800-ALTINEX

WEB: www.altinex.com

E-MAIL: solutions@altinex.com